NETHERLANDS GEODETIC COMMISSION.
(RIJKSCOMMISSIE VOOR GRAADMETING EN WATERPASSING).

GEODETIC ACTIVITY
IN
THE NETHERLANDS
1930, 1931 AND 1932.

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N.V. TECHNISCHE BOEKHANDEL EN DRUKKERIJ J. WALTMAN JR.
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I. **Base line.** A report about the measurement in 1913 of the base line in the primary triangulation, entitled BASIS BIJ STROE 1913, was printed and distributed.

II. **Precise leveling.** The new first-order leveling has been continued.

III. **Gravity research.** In the period before the Conference at Stockholm, in 1929 and 1930, gravity determinations have been made at 233 stations at sea in the Netherlands East Indies. Since then, the results have been reduced isostatically by the Bureau of the U. S. Coast and Geodetic Survey at Washington. Thanks are due to the Chief of the Section of Geodesy of this survey, Dr. William Bowie, and to the Chief of the Section of Gravity and Astronomy, Mr. Clarence H. Swick, for the care bestowed on this work.

After the reception of the reductions in Holland, the figures have been used for applying two new kinds of isostatic reduction of these stations: the Airy—Heiskanen system as published in the Bulletin Géodésique No. 30 and the regional system of isostatic reduction of Bulletin Géodésique No. 29. In a short time the Commission will publish the results of these reductions and a discussion of their features. Their comparison has effectually helped in understanding the meaning of the anomalies.

Thanks to the liberal cooperation shown again by the authorities of the Netherlands Navy, the observations at sea could be continued. In 1931 and 1932 17 stations have been occupied in the North Sea in a strip bordering on the Dutch coast. The object of this research was to extend the gravity field of the Netherlands over this area in order to get data about the continuation of the geological features and also to be able to apply the formula of Stokes for computing the geoid in the Netherlands; for the application of this formula the gravity field must be known in a wider area than that which has to be determined.

During the summer of 1932 a greater expedition was organized in the Northern part of the Atlantic. For one month and a half the Minister of Defence allotted Hr. Ms. Submarine O 13 for this research. Thanks to the exertions of the Captain, Lt. Commander P. Rouwenhorst and his officers, a great many dives could be accomplished and so 61 stations could be occupied. These stations are situated in the region around the Azores and Madeira and between those islands and the European coast.

The final computations have not yet been finished but the provisional results do allow already a few conclusions. There is no doubt that the results of the former expedition of Hr. Ms. K XIII in 1926, which had given positive anomalies for this whole area, are confirmed; the mean of all the anomalies is + 42 mgal. This positive field begins at once when leaving the European shelf at the end of the Channel; the stations over the edge of the shelf on shallow water show negative anomalies (— 65 and — 57 mgal) and over deep water in the neighbourhood + 72 and + 45 mgal.

Pays-Bas.

The crossing of the ridge of the Azores, near the island of São Miguel, shows about normal gravity in contrast with the positive field around. This is not only true for the station at Punta Delgada but likewise for the two neighbouring stations, both on fairly deep water (+ 21 and + 5 mgal). This normal gravity agrees again with the result found in 1926 with the K XIII on the island of Fayal (+ 5 mgal). These results are obviously in contradiction to the wide-spread supposition that oceanic islands generally show positive anomalies because of their being built up of heavy volcanic material. The result for Madeira (+ 72 mgal) is not in contradiction to this assumption, but strong positive anomalies have also been found at some distance from the island over deep water (+ 63 and + 81 mgal).

The complete results of this expedition and their isostatic reduction according to different systems will soon be published.

In 1932 the Commission has cooperated with the International Committee for Expeditions to the Bahamas under leadership of Professor Dr. Richard M. Field of Princeton by lending the apparatus for gravity survey at sea for an expedition to the West Indies and by its member, Dr. Vening Meinesz, taking part in this expedition in order to make the observations and to instruct Dr. Harry Hess of Princeton and Mr. Townsend T. Brown of the Naval Research Laboratory in the use of the apparatus.

In 1931 a new set of pendulums has been constructed according to the plans of Dr. Vening Meinesz. They are of the minimum type, i. e. small shifts of the knife-edges don't affect the periods, but their shape is such that their damping coefficient is not greater than that of the old pendulums.